

**SYNCHRONIZING NODES IN AN OPTICAL COMMUNICATIONS SYSTEM**  
**UTILIZING FREQUENCY DIVISION MULTIPLEXING**

**ABSTRACT OF THE DISCLOSURE**

Two nodes in an optical fiber communications system are synchronized by transmitting a reference signal between the two. The reference signal (or a harmonic of the reference signal) is generated at one node and then transmitted across an optical fiber to the other node. Both nodes are synchronized to the reference signal, thus synchronizing each node to the other. In one embodiment, the reference signal is combined with data to be transmitted between the nodes using frequency division multiplexing.